

**BULLETIN**  
of the  
**Chicago Herpetological Society**



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September 1995





# BULLETIN OF THE CHICAGO HERPETOLOGICAL SOCIETY

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**Cover:** The pig-nosed turtle, *Carettochelys insculpta*, of New Guinea and northern Australia. Photograph by Thomas Schultze-Westrum.

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## The Papua Turtle from New Guinea

Thomas Schultze-Westrum

Originally published as “Die Papuaschildkröte aus Neuguinea” in *Natur und Museum* 93(4):119-127 (1963). Translated by Paul Gritis, Department of Biology, Lehigh University, Bethlehem, PA 18015.

A snow-capped mountain range runs the length of central New Guinea. On both sides of this natural “backbone,” between mountains of lower elevation, lie rainforest lowlands with broad rivers, which originate from the rainy mountains. Where the island is widest, the mighty Fly River flows through southern New Guinea from the foothills down to the adjacent lowlands, a stretch of about 830 kilometers. With a 2.5 – 8.0 km/hour velocity, the waters of the Fly, laden with silt and mud, follow a strongly twisted, tortuous path through the tropical rainforest, through swamp and savannah, past marshy islands, until finally flowing through a giant delta to the sea.

From this watery wilderness in 1887 a primitive species of softshell turtle was described, whose nearest relatives were extinct long ago in geological time: *Carettochelys insculpta* Ramsay, the Papua turtle. Its anatomical features differ in so many ways from other present-day turtles that the systematist erected a new family Carettochelyidae [closely related to] the true softshells (Trionychidae). In the early Tertiary the Carettochelyidae occurred in Eurasia and North America. In the oil shale deposits of Messel, near Darmstadt, fossils of such turtles (genus *Anosteira*) are not rare. The sole genus and species living today, *Carettochelys insculpta*, therefore represents a true relict.

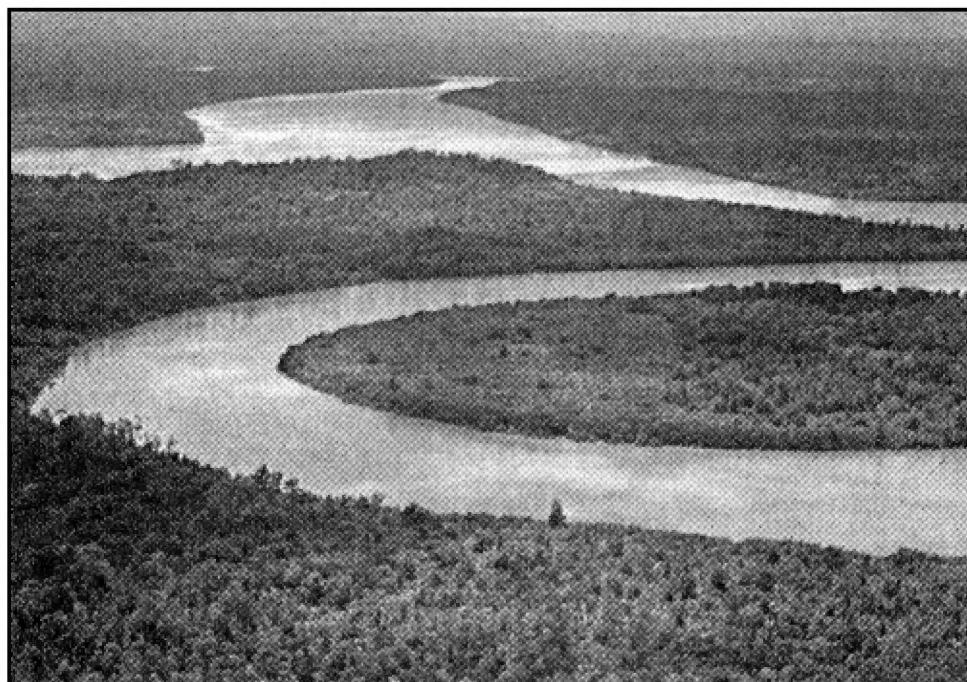
Its distribution is limited to the wet lowlands of southern New Guinea, with the possible exception of the southeastern and southwestern parts. It is not known to occur north of the central highlands or in neighboring northern Australia.

In October 1959 I flew into the wide delta region of the Gulf of Papua, east of the Fly River, to search for live turtles to bring back to Germany. There were only uncertainties regarding its presence and its life history. I had put together a short description of the animal, which excluded any possibility of confusing this animal with any other. In contrast to all

other freshwater turtles, *Carettochelys* possesses paddles similar to those of sea turtles, a tubular nose like the true softshells (Trionychidae), and a body covering of skin and not horny plates. Unlike true softshells, *Carettochelys* has a nearly complete bony shell and a distinct, externally visible horny beak on the jaws. Equipped with this description, some equipment and with much optimism I began the search for this living fossil.

Beneath the wings of the small, single engine amphibious plane lay an endless expanse of delta: as far as the eye could see to the west, a shimmering network of streams and meandering channels, among an incomprehensible number of islands. Marshy forests, sago and nipa palms, reedy swamps—from the air, these all appeared as harmless as a lawn (Figure 1). Just as the terrain below us was rich in water, so was the landscape full of many types of plants. A few clouds passed over the river delta, which resembled a sea itself. It was in our favor that the rainy season was ending, for the Gulf district belongs to one of the rainiest areas on earth. To our right, to the north, mountains rose up in the misty distance, and to our left the Gulf extended to the Coral Sea. The tide began to rise; many miles upstream the gray-green sea water mixed with the muddy brown river water.

Immediately upon my arrival at the small government guest station on the Kikori River, the District Officer announced throughout the villages that I was offering a good reward for uninjured captured turtles. On the following morning I left on an adventurous “buying trip” to the northern part of the delta, accompanied by two native police officers and a group of skillful paddlers. With our two narrow dugout canoes we were traveling for several days. Thick stands of nipa and screw palms, occasionally also mangroves, grew along the marshy banks (Figure 2). Further inland were sago palms and matted



**Figure 1.** The delta region of New Guinea Gulf district: the broad loops of one of the many rivers of this marshy area.



**Figure 2.** The rivers and channels are bordered by palms and mangroves, sometimes only passable by using narrow dugout canoes.



swamps. The river was so wide that the primeval forest on the opposite side appeared only as a silhouette. In spite of the sluggish current, we progressed only very slowly, because of the ebb tide. Broad mudbanks plunged into the muddy brown water along the flat or only meter-high bank. The aerial prop roots of *Pandanus* and mangroves projected bizarrely from the silt, and herons (*Butorides striatus*) searched among them for mudskippers (*Periophthalmus weberi*) and crabs. With the rising tide we made good progress upriver and could by now negotiate the narrow, tightly twisting channels, which were sometimes completely covered with leaves from the forest, and which connected the individual branches of the river. On the Fly River the tides carry upstream for about 320 kilometers. The Archbold Expedition of 1936–37 observed tidal bores of 2 meters in height there. The heat lay oppressively all day long over the water, whose temperature also climbed very high. On 11 October 1959 I measured a near-surface water temperature near the stream bank of 27°C.

*Carettochelys* lives in brackish, fresh, and salt water. Most museum specimens came from the tidal region of the river. A few specimens, however, were collected far inland in fresh water (Lake Murray, Strickland River, Kikori River near Kuru, and the central Aramia River). The Papua softshell turtle seemingly only left the water to lay its eggs.

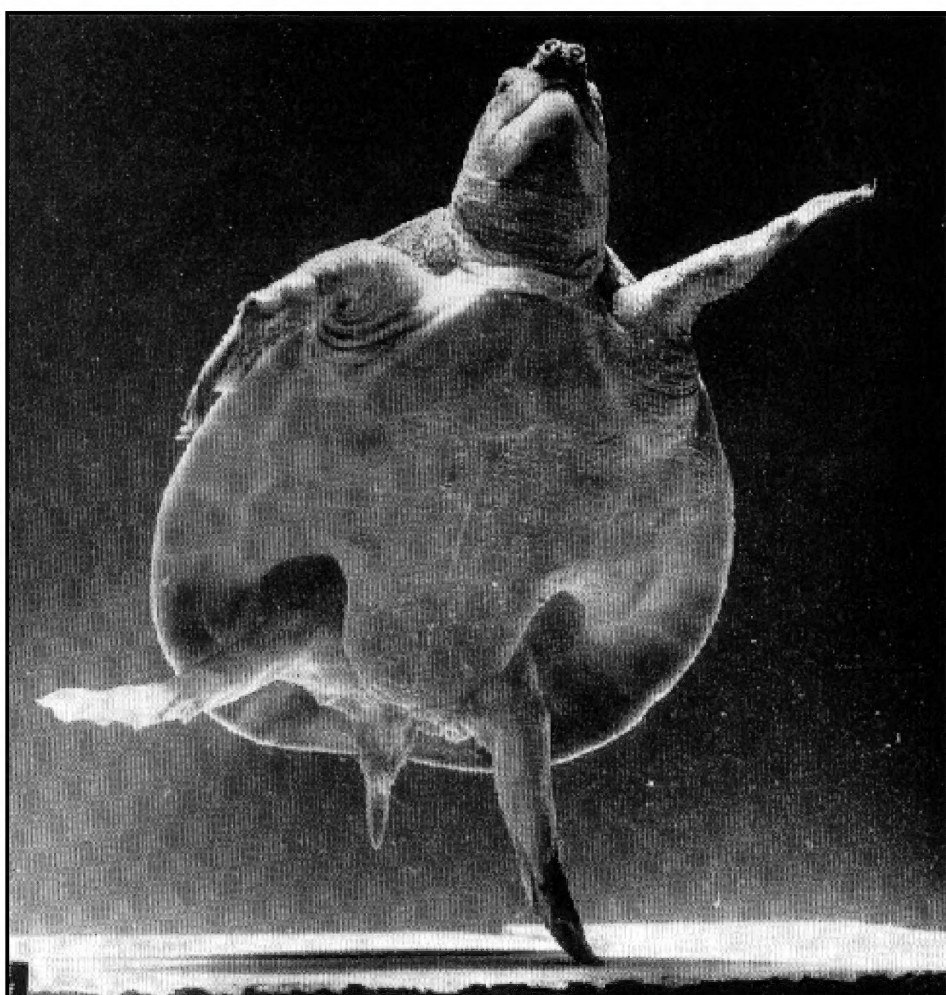
Day by day the delta drew further away, without my finding the slightest trace of *Carettochelys*. However, my collection of lizards and snakes grew rapidly. Also, the natives from the villages we visited often brought baskets full of struggling turtles to my hut. However, none of these were *Carettochelys*, they were always short-necked turtles (*Emydura novae-guineae*). These belong to the family Chelidae (sideneck turtles), which are found in the Australian region and in South America. In New Guinea the family is represented by the

genera *Emydura* and *Chelodina*, of which the former is the more common. In addition to these and *Carettochelys* there is also in the interior inland waters only the widely distributed softshell *Pelochelys bibroni*. Tortoises are absent in the Australasian region.

My native helpers had usually captured the short-necked turtles in narrow channels, which had become dry during ebb tide. I placed a large net at high tide at the mouth of one of these channels, and let the water go through—but without success [at capturing a turtle]. *Carettochelys* is a wonderful swimmer and is most at home in the broad channels where it burrows itself in deep mud at the beginning of the ebb tide.

The natives of the Gulf district first learned about netting fish from the Europeans. They use nets as well as their traditional devices: fishhooks, spears, four-pointed arrows, fish fences, and high baskets without bottoms, the top ends of which slant to form a cone. The women go to the river at low tide with these baskets, hide them in a low area in the mud, and wait until something writhes under the container. In this way turtles are captured. They are a welcome change from the daily diet of sago and are usually baked in their shells. One day an old native told me that a turtle with a long nose—he called it “Uo”—would be caught by this type of basket, and was especially good eating. Now I knew why I had not received any *Carettochelys* from the natives—the Papuans had eaten them! I then raised the amount of the reward, and shortly thereafter, to my great joy, nine living Papuan softshells were swimming in a wash basin at the Kikori Administration Station. Eight of these animals, among them five young of about 9 cm shell length [unspecified], were caught using the basket method described above in the mud of a broad but flat river channel near Weiru. The ninth specimen, a record specimen of 48 cm shell length [not clear but might be “straight-line distance”] had been caught far up the Kikori River on a fish line.

Of the young animals, three died in the first days; at first they tried to reach the water surface but could not do it; soon thereafter they were dead. Later I noted that a larger specimen, which had been without water for a long time during transport, also could scarcely reach the water surface. Of the other small specimens, one was severely damaged: a large piece of the posterior edge of the shell had been bitten off,



**Figure 3.** A Papua turtle (*Carettochelys insculpta*) swimming to the water surface to breathe. Here the flat, smooth plastron is visible.



**Figure 4.** The Papua turtle (*Carettochelys insculpta*) in calm [normal] swimming.



perhaps by a larger turtle. In spite of that, that animal is still alive today.

Nearly as exciting as the search for these turtles were the return trip to Port Moresby with our valuable specimens, the obtaining of export, veterinary, and customs papers, and finally the long flight back to Europe. From Port Moresby the animals first flew to Western New Guinea and in three days to Manila and then on to Munich.

Only three of the turtles captured in 1959 arrived alive in Germany. In 1960 a friend in New Guinea sent another live specimen. Observations on these animals follow.

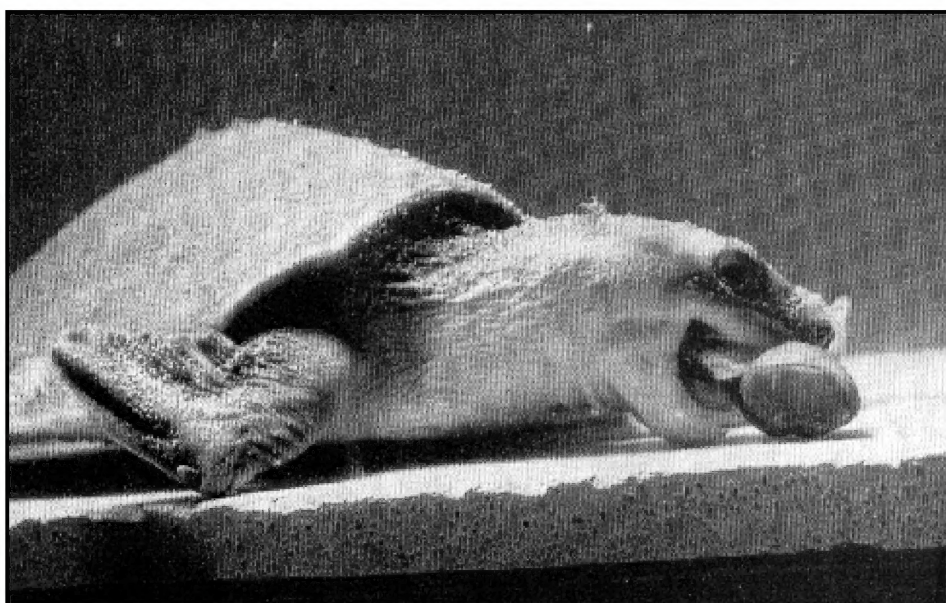
Shortly after their capture the turtles could no longer be maintained separately, so that some bit each other. When I would pick up a turtle by hand, to observe it more closely, it would attempt to bite with wide-open jaws, and would thrash actively with its flippers.

The muddy brownish-gray dorsal skin lies over the carapace and at various places is arranged in many small wrinkles. The light [colored] plastron (Figure 3) is readily scratched on sandy or rocky substrates. The skin is very tender and contains readily visible, finely branching blood vessels, which may possibly serve in cutaneous respiration. The anterior portion of the plastron is connected to the rest of the shell with connective tissue, which enables it to move. However, unlike many land turtles, the anterior opening of the shell cannot close up completely when the head is withdrawn. Also, the remaining scutes [plates] on the plastron are not rigidly in contact, but are somewhat movable relative to each other.

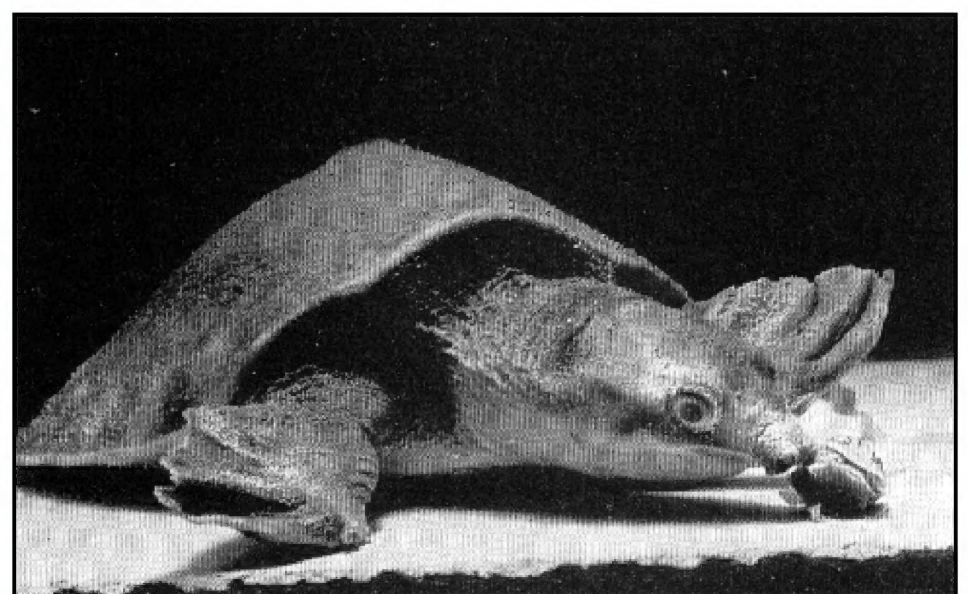
In their aquaria, these turtles stayed mostly at the bottom. They were obviously afraid of bright light and sought shelter among roots or next to stones. The elegantly streamlined body shape and the characteristic paddles of the forelimbs would be expected of an actively swimming lifestyle in open water. However, under natural conditions *Carettochelys*, in spite of its potential for swimming, might be primarily a resident of the bottom water layers. However, good swimming ability is probably very important for the Papua softshell turtle. It would be useful in reaching the water surface to breathe, in avoiding or escaping from predators in the turbid water, where limited vision may not give much warning, and also in main-

taining position in the strong currents [or tides]. In swimming ability as well as in the morphology of the forelimbs *Carettochelys* is intermediate between the sea turtles and the other aquatic turtles. Whereas the paddles of sea turtles are strongly built, the dermal fins of the Papua softshell seem more flexible [or versatile]. Digits III, IV, and V are greatly elongated in contrast to digits I and II which are short and bear strong, broad claws. During horizontal calm [normal] swimming (Figure 4) the paddles are held nearly horizontally, are raised up and forward and then quickly lowered nearly perpendicularly, thus simultaneously being pulled to the rear and downward. The most highly developed digit (III) extends in the direction of movement [of the flipper], either forward or rearward. The less-developed digits (IV and V) are somewhat collapsed in the stroke due to water pressure. During fast swimming, for example during escape swimming, or when the turtle goes to breathe at the surface, the paddles are used alternately and the stroke goes more rearward than downward. Also, a simple backstroke without a downward movement may sometimes be observed. The broadly sweeping strokes move the animal forward quickly. Complete stopping, as occurs in sea turtles, occurs sometimes, especially when feeding at the water surface. "Swimming" is therefore a complex affair. The two claws on each forefoot and those on rear toes IV and V seem at first glance to be rudimentary and obviously functionless. But careful observation soon reveals that they have an important biological meaning. Above all, it is noticed that the forward-projecting claws often grip the substrate, when *Carettochelys* swims near the bottom. This hooking effect is better seen when the creature crawls instead of swims, and holds its forefeet nearly vertically over the substrate. For digging into the mud and for excavating a nest the broad, shovellike fore- and hindfeet are also valuable. During the mentioned "diving disease" the turtles hooked their fins into a crescent shape among the tree roots to hinder the tendency to rise to the water surface.

The forelimbs have another important function during feeding. Larger pieces of food, that the turtle cannot swallow whole, are shredded into smaller pieces by the forefeet. In this case *Carettochelys* extends its paddles forward, parallel to each other and holds the food between the vertically positioned paddles. The claws, projecting downward and away from the



**Figure 5.** Water snails were accepted as food; their shells were expertly broken by the turtles' jaws.



**Figure 6.** Strange objects were often investigated by use of the tubular nose. – All photographs by the author.



body, then hook into the food, so that now pieces may be bitten off with the sharp-edged jaws. The pieces are actually removed by lateral shaking of the forefeet.

I offered salad [green leafy vegetable(s)], apples, other fruit, meat [unspecified], rainworms [?earthworms], aquatic snails (Figure 5) whose shells would be broken by the [turtles'] jaws, and young mice. The turtles paid no attention to live fish.

Maintenance of the Papua softshell turtle presents no special difficulties. Most specimens have good appetites and when hungry will search the bottom for food. Often they use their tubular noses to investigate objects (Figure 6). When I threw a piece of meat into the tank *Carettochelys* soon became active and sought the meat at the water surface or lying on the bottom, even outside the field of vision [implies sight is not used to find food]. Sometimes the searching began only after the next breath [was taken].

To breathe, *Carettochelys* swims quickly to the water surface, with outstretched neck and at a fairly steep angle to the water surface. It breathes deeply and audibly, and then submerges, partly sinking passively with its body nearly horizontal, and partly through synchronous activity of the paddles, and returns to the bottom. A high percentage of its required oxygen may probably be obtained—as has been shown for some other aquatic turtles—directly from the water. Turtles resting on the bottom can receive water through the mouth using clearly visible, fairly constant movements of the throat, and can push it out mostly through the nose. One animal was

observed [to do this] 24 times per minute at 26°C water temperature. Here the jaws remain closed, the water can flow unhindered in and out through a gap under the slightly projecting upper jaw. A portion of the pharynx, from the beginning of the esophagus, is covered with many peg-shaped dermal fringes. These are also known in other very aquatic turtles, especially *Dermochelys*; they probably function in gas exchange. Whether they also have a role in tasting is unknown. But certainly the water flow through the mouth and nose serves a chemosensory function. Perhaps the external skin, especially ventrally, may also serve a slight function in gas exchange. If a Papua turtle is placed on its back, water flows out of the cloaca. In a [dead] specimen of *Carettochelys* I found a large cavity at the termination of the intestine. Possibly this portion of the intestine may also “breathe.” The heart of this species, as in the true softshells, lies on the right side of the body.

*Carettochelys* is especially sensitive to vibrations from the ground and also sudden movements within the water. It reacts to [somebody] entering the room, when it “draws together” and pulls the head in. If touched underwater it quickly moves away. Swimming animals react to visually-perceived disturbances [not involving being touched] by immediately sinking to the bottom.

It has been quite stimulating to be able to record first impressions of the previously unknown life habits of such an unusual animal. These observations should provide the basis upon which further study can build. Studies on swimming [locomotion], aquatic respiration and chemosensory orientation in *Carettochelys* are especially promising.

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*Bull. Chicago Herp. Soc.* 30(9):192, 1995

## Interactive Behavior in *Cuora galbinifrons* (Chinese Flower Box Turtle)

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In 1992, I reported on vocalization behavior in *Cuora galbinifrons*. In brief summary, I reported that the so-called Chinese flower box turtle emits an attention-oriented sound when it is either hungry or dissatisfied with the water level in its enclosure (Price, 1992). I herein report on new behavioral modifications to captivity in the same two turtles during the period from 26 July to 4 August 1995. At this time New York experienced a heat wave with very high humidity, resulting in the turtles being exposed to considerably more tropical conditions than usual, largely due to insufficient air conditioning.

In 1994, I decided to remove the turtles from their opaque enclosure tanks and moved them to an 18 × 24 inch, clear plastic enclosure, 1 foot in height, with a clear snap-on top. The turtles, which had been very shy in captivity over the prior five years, gradually became much tamer, and no longer pulled their heads in when they were observed. The female (carapace length 22.2 cm) was eventually able to open the top by force by bracing her hind legs on the bottom and front legs

on the cover. I moved the enclosure to a lower position opposite a large-screen television set and secured the cover with barbell weights in late 1994. Several weeks thereafter, I noticed that these largely diurnal turtles were moving to the front of the enclosure when there were closeups of humans on the TV screen. My hypothesis was that they were associating human faces on the screen with me, whom they regard as the sole source of their food. Consequently, I started offering them bananas (their only food other than earthworms) when they exhibited this behavior. They were always receptive to eating under these circumstances, even at odd hours of the night. They were not receptive to offerings of bananas when the TV was on at night and they were not facing it. They did not then and still will not eat in a dark room at night. Since they are in my bedroom, and can often see me when I am there, I hypothesize that they have developed a passive signaling device they employ where they are hungry and able to view a representation of a human face.



During the aforementioned heat wave, the room, which normally is kept at 22°C year-round, occasionally reached a temperature as high as 27°C. At these times, the female turtle braced herself against the sides of the enclosure and forcibly shook the weights rather noisily. This behavior was observed during the period 2100–2300 h, on 26 July, 28 July, 2 August and 4 August. I was unable to determine the cause of the disturbance the first time, and only checked to make sure the turtle had not fallen on its back, which it occasionally does. The female turtle made a loud disturbance on 28 July 28 at 2300 h, right after the television was turned off. I thought this rather unusual, and offered the turtles half of a banana, nearly

twice their daily consumption. They ate the food offered very quickly, and did so again on 2 August and 4 August. Whether the female *Cuora galbinifrons* was stimulated to exhibit this behavior by the TV or by seeing me remains ambiguous, but it appears that higher heat and humidity, having increased her hunger, may have fostered development of another signalling method besides vocalization (which both she and the male still do occasionally). It should be noted that the male, which measures only 15 cm in carapace length, is not big enough to reach the cover and hence cannot cause this noise, but was also hungrier than usual at the higher temperature.

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*Bull. Chicago Herp. Soc.* 30(9):193, 1995

**Book Review: *Hollows, Peepers, and Highlanders: An Appalachian Mountain Ecology* by George Constantz. 1994. 267 pp. Mountain Press Publishing Company, Missoula, Montana. \$14.00 [Available from the CHS Book Service — Members' Price \$12.60]**

**Philip A. Cochran  
Division of Natural Sciences  
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De Pere, WI 54115**

With “peepers” in its title and a painting of a frog on its cover, this book promises at least some consideration of the Appalachian herpetofauna. It makes good on that promise, but it delivers much more. Indeed, I first heard of George Constantz through his work on the reproductive behavior of darters and other fishes, and any herpetologist who reads this book will learn much about fish (and trees...and insects...and geology...and biogeography...and mountain folk...). The author's three declared objectives are to share his excitement for viewing Appalachian plants and animals from an evolutionary perspective, to inspire people to do more “backyard biology,” and to stimulate preservation of the Appalachian environment through appreciation. In his own words, “We have the power to see wonder in the commonplace, but only with a little practice.”

*Hollows, Peepers, and Highlanders* consists of 30 essays or chapters, most of which are grouped under the headings “Stage and Theater,” “The Players,” and “Seasonal Acts.” Herpetological selections include single entries devoted to frogs, box turtles, and copperheads, and a trilogy of essays on plethodontid salamanders. In addition, herpetological examples are used in essays on zoogeography, centers of biological diversity and habitat fragmentation. Following the essays are lists of common and scientific names of species mentioned in the text (including 26 reptiles and amphibians), a glossary, a bibliography subdivided by chapters, and a detailed index.

I could find little to quibble with in this book. The uninitiated may find a few of the examples a bit confusing; there are

a few apparent logical inconsistencies within and between chapters. The definition of “cloaca” implied on page 94 is incomplete (it is correctly defined in the glossary), and “cloaca” would have been preferable to “anus” on page 109. Most of the full-page illustrations are aesthetically pleasing and add to the essays with which they are paired, but some would be more instructive if accompanied by an explanatory caption, and some are a bit cartoonish (e.g., the birds).

*Hollows, Peepers, and Highlanders* has much to offer to a variety of readers. Because the prose is relatively jargon-free and uncluttered by literature citations, it should be relatively accessible to interested amateurs. At the same time, the bibliographic list for each essay provides both classic works and recent articles in the primary literature, and these will be appreciated by students and by professional specialists seeking to broaden their horizons. For teachers, the book provides a gold mine of examples, and it would be a great supplemental text for an ecology course. As the author has pointed out, the examples and concepts he discusses are relevant not only to Appalachia but also to much of the eastern United States, at least that portion vegetated by deciduous forest.

I hope this book is widely read, and that it meets the author's objectives. He has committed the profits from its sale to the protection of local Appalachian ecosystems, and he challenges his readers to rise above their good intentions and take similar constructive steps.



**Book Review: *A Naturalist in Florida: A Celebration of Eden* by Archie Carr  
edited by Marjorie Harris Carr, foreword by Edward O. Wilson  
1994. xviii + 264 pp. New Haven: Yale University Press  
\$28.50 [Available from the CHS Book Service — Members' Price \$25.65]**

**Raymond Novotny  
816 Glenwood Avenue  
Mill Creek Metropolitan Park District  
Youngstown, Ohio 44502**

Archie Carr (1909–1987), graduate research professor of zoology at the University of Florida, was the world's foremost authority on sea turtles, and an eminent naturalist, conservationist and writer as well. In his more than 50 years at the university he wrote many books including *The Windward Road* (1956) which won the John Burroughs Medal for exemplary nature writing from the American Museum of Natural History.

Harvard's E. O. Wilson, one of the 20th century's most influential biologists and a highly acclaimed author himself, wrote the foreword to this new book. Wilson thus confirms the importance of what Carr, through his observations, thoughts and words, has left behind for us to enjoy and to ponder.

Dr. Carr had started a Florida book in the late 1960s. Regretfully, that book was never finished. In this collection his widow, Marjorie Harris Carr, has created that Florida book by bringing together both unpublished and previously published essays, and excerpts from his other books. Many of us in the north, myself included, have long been held spell-bound by such magical Florida attractions as Disney World and EPCOT Center; this new volume will inspire its readers to look beyond the recently created magic abounding in the world's premier vacation and entertainment center. Carr describes another magic created long, long ago: the wildlife and wild land of the Florida peninsula. Although ravaged by development during the last century, some of it still remains. And what remains is worth reading about.

As almost half of the book's 25 chapters bear herpetology-related titles, this book should have great appeal to CHS members. Carr, originally an English major, probably speaks on the behalf of reptiles and amphibians better than any other writer.

In "The Cold-Blooded Fraternity" he surveys the four main groups of reptiles by citing examples of those living on his farm. Alligators have made a remarkable comeback from the brink of extinction; he writes of their natural history in "Alligator Country" and his family's struggle and subsequent coexistence with a nuisance 'gator living in their farm's pond in "Living with an Alligator." "There is more intellectual reward in a rousing frog chorus than in much of television," is his reply in "Frog Songs" to those recent transplants to this froggiest of states who want to know how to kill the frogs that are destroying the neighborhood's peace and quiet with their relentless serenade. Evoking the heralded critic of pesticides, Rachel Carson, in another essay, Carr sums up his defense of serpents with, "Others have written for cranes and whales, and

I hasten to say these words in praise of snakes, whose silent spring is also far along."

Herpetologist Carr, however, does not limit himself to the above-mentioned topics. He includes the Spanish moss forests, the natural landscapes of Florida, water hyacinths, hounds, and a dichotomous key to northern Florida fishes written decades before, yet in the same vein as Gary Larson's cartoon *The Far Side*.

As the millennium approaches, the condition of our environment is constantly debated. Of what value is wilderness? Is biodiversity? In a dreamlike encounter between a man and the last rattlesnake in America, Carr metaphorically sets the stage of our dilemma in "A Dubious Future." The snake is a pregnant female. The man approaches it with a big stick, one of the few still to be found in an overcivilized world. He alternately raises and lowers the stick, caught between hatred and admiration.

Although Carr does not finish that scene for us he ends with optimism in the final essay, "Eden Changes." Comebacks from near-extinction are not limited to alligators: witness the success of otters, beavers, manatees and egrets and the abandonment of misguided grazing and fishing practices in Florida. He writes of a "change of heart" by the people resulting in a "new public consciousness and conscience." Citizens are taxing themselves to save land and Florida has perhaps the finest public lands program in our nation.

Many years ago Dr. Carr wrote that his wife was a naturalist too, "between babies." Marjorie Carr, now retired, was also a well-known and effective environmental activist. Her notes illuminate the chapters and update the older essays to 1994. In addition they lead to further readings and to organizations committed to natural Florida. *A Naturalist in Florida: A Celebration of Eden* stands as a loving tribute by Mrs. Carr both to her late husband and to their Florida.

I lived in the college town of Gainesville, home of "UF" (not "Florida" as the football score announcers would have it) for two years in the 1980s and had the privilege of talking with Dr. Carr a half-dozen times. The book's series of black-and-white photographs, presumably gleaned by Mrs. Carr from the family album, give us a peek into his life and make me yearn for a full Archie Carr biography. Perhaps that will come next.

Many of us are anticipating our next trip to the Sunshine State, if only in our daydreams. Read this book before you leave. Archie and Marjorie Carr will make your visit all the more meaningful.



## HerPET-POURRI

by Ellin Beltz

### Dear readers

I'd like to thank all the contributors who sent cards, clippings, letters, photos and cartoons including those listed after each entry. Special thanks to Bill Burnett, Steve Ragsdale, Mark T. Witwer, Jack Schoenfelder, and P. L. Beltz. Keep the stuff coming! It's a lot easier to write a column with a surplus of goodies than to have to stretch each paragraph to fill the page. Congratulations to Mark Witwer for his upcoming article in *Herpetological Review* on corn snakes! You can contribute, too. To be used, each article must have the date/publication slug and your name firmly attached. Do not use staples. To see why, staple newspaper then try to take it apart! I can't tell you how much stuff I get that has to be flattened, prodded, unfolded, deciphered, ironed etc. and it still hasn't got the CHS member's name on it. This gets important because I'm getting so much mail for this and other columns that I've got volunteers helping to sort it out. We try to keep names with clippings, but you *will* get credit *for sure* if you put your name on each one. Some suggestions: 1.) send the whole page or pages, newsprint doesn't weigh much; 2.) photocopy the article using a 64% reduction and you can get half page of newspaper on one 8½ × 11" sheet; 3.) use your return address stamp or stickers on each clipping. Mail your contributions to: Ellin Beltz, 1647 N. Clybourn Avenue, Chicago, IL 60614-5507. E-mail letters, comments, etc. to <uebeltz@uxa.ecn.bgu.edu>.

### Sea turtle update

- I haven't gotten an article on this yet, but the news from the Gulf is that a judge has ordered the shrimping industry to use very specific kinds of TEDs as well as defined trawling practices in an effort to reduce sea turtle mortality. [via Internet]
- The Florida net-ban law went into effect in July in an effort to protect sea turtles. Commercial fishermen are prohibited from setting nets at night and are now limited to one gill net per vessel. [Leesburg, FL *Daily Commercial*, December 28, 1994] On the other hand, despite warnings of mortality to hatchling sea turtles, the Florida legislature passed a bill which would permit beach "nourishment" at any time of the year. This means that workers could bury turtle nests under hundreds of pounds of "new" sand, possibly preventing the babies from reaching the surface. The problem is that unrestricted coastal development has changed sand flow patterns, resulting in erosional losses to the beaches of some communities formerly famed for sand beaches. Tourism is bucks in Florida, and tourists expect to see beaches. [Orlando, FL *Sentinel*, April 18, 1995] Beach residents take a dim view of limits on their outdoor lighting, but research has shown that the first light babies see sets their internal compasses. If the light is the glow from the Atlantic, all well and good. If the light is from a tennis court or highway, the hatchling goes the wrong way and may even be at a lifelong disadvantage from the incorrect initial setting. Regardless of the effects of their electric lights on this ancient species, beachfront residents have fought any restriction of their outdoor lighting tooth and claw. Authori-

ties are recommending motion-sensor lighting for security purposes and shielding or redirecting lights which shine over the beaches. [Orlando *Sentinel*, April 30, 1995, all from Bill Burnett]

- A new threat faced by sea turtles is that fire ants are attacking turtle nests, killing and eating baby turtles in all stages of development. Fire ants were introduced from Brazil in the 1940s and have marched across the southeastern U.S. establishing colonies ever since. They have a nasty bite and some kind of venom which this author personally experienced on a recent trip to Alabama. One researcher quoted in the article said that the ants "will eat the rubber off circuits." He speculates that they are actually eating the turtle eggs since in the lab they prefer liquid food like chicken eggs. Another researcher said, "You open up a clutch cavity, and bang—they're covered with fire ants. Not every egg, but a lot of eggs, they're just cleaned out. You can see these breach holes where they've gotten in there. [When hatchlings were attacked] they were just swarmed over. They would eat the eyes of the young. We can see the bite marks on the body, but it's not like the eyes. They seem to go for the soft tissues." [Leesburg, FL *Daily Commercial*, July 3, 1995, from Bill Burnett] Incidentally, insecticides are out. The turtle nests are in a wildlife refuge and Fish and Wildlife has no plans to intervene in these "natural" events.

- Kemp's ridley sea turtles nested on the Padre Island National Seashore this year. The first nest to hatch received national press coverage. The first article received here was from CHS member Waiva Worthley from the Corpus Christi, TX *Caller Times*, July 15, 1995: "Roughly the size of a silver dollar, tiny specimens of the world's most critically endangered sea turtle have begun hatching. . . . Seventy-nine of 88 eggs found . . . had begun hatching and were expected to be released into the ocean within hours. . . . Four Kemp's ridley sea turtle nests . . . were located this spring. . . . The increased number of nests could indicate the future success of a 10-year effort, begun in the late 1970s, to establish a Kemp's ridley sea turtle nesting area locally. . . ." The effort referred to is the "imprinting" of baby turtles effected by letting them run over the beach sands on Padre Island right after hatching, then taking them to Galveston to be "head-started," and finally releasing the turtles offshore from boats at an age of two or three years. This effort was spearheaded by HEART, a volunteer group in Galveston. The head-starting facilities were unfunded by the National Marine Fisheries Service, which claimed they provided the turtles no provable advantage. I guess it shows you that you see what you want to see in data as in real life.

- Scientists have discovered that loggerhead sea turtles have internal magnetic compasses which help guide them on their oceanic peregrinations. As reported in *Science News* [July 8, 1995, from Mark T. Witwer] researchers at the University of North Carolina-Chapel Hill take hatchling sea turtles and put little Lycra harnesses on them. The harnesses are attached to a rotating arm and the movements of the animals are plotted on a



data recorder. The first light seen by the turtles sets the east-west variable. (So far, this is old news.) Recently they found that the sea turtle can use its compass to determine latitude by means of reaction to the inclination angle of the Earth's magnetic field. In other words, the closer you go to the poles, the steeper the angle; the closer to the equator, the shallower the angle of the Earth's magnetic field. Somehow, biologically, the turtles are measuring this. The advantage to them is that they can stay out of colder northern waters—or at least that's the speculation of the researchers.

### Freshwater turtle tales

- The Philadelphia *Inquirer* reports that a live 100-pound turtle was turned over to authorities at the Hainan provincial museum. A member of one of China's endangered species (the article did not say which) it is reported to be 500 years old by the Xinhua news agency. *China Daily* reported that 16 restaurants in the southern Guangdong province were fined for serving protected animals and fined from \$600 to \$9,600 each. [July 1, 1995, from Kathy Bricker]
- The Nature Conservancy has acquired a 1.8-acre bog which contains one of Tennessee's two remaining bog turtle populations. The turtles had it made in the shade until the U.S. government began draining marshes in the 1920s so that people could grow crops, harvest timber, and raise livestock in the area. This reduced the species to isolated populations in Tennessee, North Carolina, Georgia and Virginia. [*The Tennessee Conservationist*, Jan/Feb 1995, from Bill Burnett]

### News of the venomous

- Recently published figures from the Florida Office of Vital Statistics compare deaths by snakebite versus deaths by lightning strike in that state. Of the five years shown, one person died of snakebite in 1990, and 54 people died after being struck by lightning. [Orlando, FL *Sentinel*, July 1, 1995, from Bill Burnett]
- Participants in the eighth annual Rattlesnake Round-up in Otero County, New Mexico, were cautioned against collecting on state trust land by the state Land Commissioner. Ray Powell said, "We lease this land for grazing livestock. We do not lease it so that individuals can profit from unregulated and unaccountable harvesting of wildlife, which in turn causes long-term damage to our trust lands. . . . [Rattlesnakes] eat mice, prairie dogs and other animals that carry plague, Hanta-virus and other diseases. Those species would proliferate and the potential risk to humans is obvious." [Albuquerque, NM *Journal*, April 7, 1995, from J. N. Stuart]
- More timber rattlesnakes than usual have been reported in the Hoosier National Forest. Officials caution that this doesn't indicate a population recovery just that more snakes are being seen by forest workers on a particular dry ridge top. The timber rattlesnake is listed as a protected species in Indiana and is one of three venomous snakes native to the state. The other two are the copperhead and the cottonmouth. [*Post-Tribune*, July 15, 1995, from Jack Schoenfelder]
- The Memphis, TN *Commercial Appeal* reports that a prison

inmate has filed suit against the Texas Department of Corrections alleging "he was bitten by a rattlesnake after guards forced him to catch and kill hundreds of the reptiles using only his hands and a hoe . . . from the work area at the Dolph Brisco Unit prison. A Texas Department of Corrections spokesman had no comment on the suit, filed in U.S. District Court." The inmate further alleges that he was required to give the "valuable hides" to the guards. [March 10, 1995, from Bill Burnett]

- The Hawaiian Electric Company warned its customers to be on the lookout for brown tree snakes following the discovery of one individual of this species at an Hawaiian airport. The company provided some fast facts: "One female snake in Hawaii could start a population; Guam's brown tree snake population swelled to a high of 30,000 per square mile, the highest density of snakes in the world. The snake has caused more than 250 power outages in a year in Guam, with estimated utility damages of millions of dollars per year. The snake, which grows as long as 10 feet, is attracted by the scent of blood. Its venom can cause a painful swelling in adults. Infants can be seriously injured, perhaps fatally. It took less than 40 years for the snake to decimate nine out of Guam's 11 native bird species and many native animals. Hawaii has no natural predators for snakes. . . ." [March 1995 *Consumer Lines*, a publication of the Hawaiian Electric Company, from Alan W. Rigerman]
- The June 27, 1995, *Caymanian Compass* carried a Reuters report from Multan, Pakistan, about a 17-year-old girl who is "Snake Crazy." Seems the young lady "drapes a writhing bundle of snakes around her neck, letting them wriggle across her face and body . . . selects two . . . and pops their heads in her mouth. Then she takes another and encourages it to bite her finger. When the fangs draw blood, she sucks out the poison. Decked in costume jewelry and a red tunic, [the girl] performs her snake show nightly . . . 250 miles south of Islamabad. She has tamed a collection of 30 snakes, some of which she says are highly poisonous. . . . [She] demonstrates how she feeds a snake by hand, forcing its mouth open with a stick, which she then uses to ram a piece of buffalo stomach far down its throat. She massages the snake's body to help it digest the meal." [from L. W. Reed, D.V.M.]
- Biologist Alan H. Savitzky of Old Dominion University has had to abandon a project conducted jointly with Barbara Savitzky of Christopher Newport University since 1992. The study was intended to track the movements of rare canebrake rattlesnakes though Northwest River Park in Chesapeake, Virginia. Last year, after a public outcry, the state and city axed the study. The Drs. Savitzky were required to remove radio transmitters from all the animals and abandon the study. Local residents claimed that taking venomous animals and then replacing them was like "finding broken glass or a loaded gun and putting it back." They also complained that too much was being spent, ignoring the fact that the study was funded by contributions. [Richmond, VA *Times-Dispatch* May 27, 1995, from Mr. Laverne A. Copeland]
- The exact same article was printed in a bunch of papers around the U.S. about this year's rattlesnake roundup circuit.



Herpetologists are aware of the methods and intents of these events: catch as many snakes as you can, drag ‘em to town, show ‘em to the tourists, and cut their heads off. This year, Sweetwater, Texas, reports receiving \$1.5 million in tourism revenues in their rattlesnake roundup weekend. Clark Adams, a wildlife biologist at Texas A&M University, did a state-commissioned study of the effects of roundups on snake populations in 1991. Adams said that he did not find “any up or down trend” in rattlesnake populations. [Memphis, TN *Commercial Appeal*, March 12, 1995, from Bill Burnett; March 12 Albuquerque, NM *Journal*, from J. N. Stuart and the *Sunday Advocate*, Baton Rouge, LA, from Ernie Liner]

- Tom Taylor sent a piece written by E. J. Montini in the *Arizona Republic* [March 26, 1995] which has a few great quotes: “Here in the desert, we’ve been having a problem with rattlesnakes. It’s been in all the papers. . . . Greater Phoenix claims the most serious serpent infestation. . . . A man who removes snakes from the many new housing developments in the area told a reporter, ‘These guys went to sleep last year and then woke up to find their homes dug up. They then end up wandering into people’s back yards.’ . . . It’s humans who write the headlines and buy the newspapers, however, so we call it a rattlesnake problem. And why not? We moved to the West in order to live in the West, or so we say, ignoring the fact that a piece of the West must be scraped away to make room for each of us. Record numbers of snakes are turning up in residential areas, the papers report. Which, of course, is a lie. Record numbers of humans are turning up in rattlesnake areas. . . . You could say we also have a cactus problem. And a creosote problem. An agave problem. All are removed from the landscape by developers who sell a version of the West in which the West is stripped bare and covered with the East. Grass replaces desert marigolds. Walls go up in fields of Mexican poppies. . . . Rattlesnakes are left behind. . . . They never saw the land developers coming.” The snake problem was reported in the March 22 *Arizona Republic* and carried by papers around the country.

- This columnist’s “herp-pet-peeve” is writers who insist on calling cobras, rattlers, etc. “poisonous snakes.” After all the stories of Asian snake restaurants, surely they could figure out that there aren’t any “poisonous snakes.” My phrase for remembering this is “poison is when you eat it, venom is what eats you.”

### Nonvenomous snake stories

- Henrico County, Virginia, animal officers searched round-the-clock for an 11-foot-long African rock python reported lost by its owner. Police went door-to-door to warn residents that “a python was on the prowl,” according to the June 28, 1995, *Richmond Times-Dispatch* [from Mr. Laverne A. Copeland].
- An Amelia County, Virginia, family suffering from repeat *Salmonella* infections has been informed that the source was their pet boa constrictor. The director of the Piedmont Health District told the *Richmond Times-Dispatch* [July 8, 1995, from Mr. Laverne A. Copeland] that the case was first reported with the family’s 8-month-old infant had a fever, diarrhea and other symptoms of a *Salmonella* infection. The pediatrician alerted

health authorities out of fear that the well water may have been contaminated. Tests of the well, the baby, the parents and the pet indicated that the last was the source of the rare subtype of the bacteria found the baby and the parents.

- The July 22, 1995, Orlando, FL *Sentinel* reports: “At least the suspect wasn’t speeding. He was actually kind of lollygagging through the intersection of Grandview Street and 11th Avenue. . . . That’s when police apprehended the 3-foot python slithering through downtown.” Police hope the owner will come forward. Two people have already offered to adopt the ball python if its owner doesn’t show up. The animal was claimed by the sister of its owner who said the snake had been missing for two months and that she didn’t know how it got loose. [Leesburg, FL *Daily Commercial*, June 24, 1995, both from Bill Burnett]

### Poisonous amphibians

- Our dear friend and long-term invasive species champion *Bufo marinus* (the cane toad) has recently settled in the Orlando, FL area due to a series of mild winters. One was found run over on Fern Creek Avenue, and others have been seen in Hillsborough County. *B. marinus* was introduced into South Florida in the 1930s in a misguided attempt to control sugar cane beetles. The toads are nocturnal, the beetles are only daylight active. Can we guess the rest? The beetles bred with abandon, the toads bred with abandon. The beetles ate the cane, the toads ate anything they could snarf and both are still a fairly serious problem although insecticides do a fairly good job on the beetles. Dogs and cats that take a bite out of *Bufo* can become quite ill. [Orlando *Sentinel*, June 23, 1995, from Bill Burnett]
- Reuters reports that “three Filipinos on a drinking bout died of poisoning after eating a frog they saw jumping out of a canal, . . . Two other people were in serious condition in a Manila hospital after sharing the same amphibian. The five people, who thought it was a delicacy, did not know it belonged to a species of poisonous bullfrog. Filipinos love appetizers when drinking and eat many things with their beers, usually foods believed to be aphrodisiacs—such as dogs, frogs, beetles, snakes, lizards and crickets. . . .” [Memphis, TN *Commercial Appeal*, July 12, 1995]



# NEW TLINE

As turtle enthusiasts continued to trickle in to the July 25, 1995, meeting of the Chicago Herpetological Society at the Field Museum,



President **Marcia Rybak** delved into the first order of business. She announced that **Ron Humbert** was on his way to the airport to pick up the evening's guest speaker whose flight had been delayed. She also announced that the long awaited Russian Horsfield's tortoises had finally arrived and members still interested in adopting them should contact Ron. Sales Merchandiser, **Joan "we want" Moore**, presented discounts on T-shirts and recommended books. In other turtle news, Turtle Club representative **Ellis Jones** dispelled rumors that the CHS Turtle Club had gone "plastron up." The next meeting was scheduled for August 27 at the North Park Village Nature Center. **Char Haguewood**, Chairperson for the Midwest Herp Symposium committee, announced that a meeting would be held on August 11, 1995. She thanked **Nicole Marrello**, who had offered to take registrations, and **Brian Jones**, who had volunteered to supervise the hospitality suite. However, much volunteer help is still needed. She reminded us that there would be special "perks" for helpers. As adoption chairperson, Char also announced that she had received 20 additional iguanas this month alone, making the total a whopping 31. She was saddened to announce that several were in poor health or "on death row." She suggested that members glance through her record/photo book if interested in adoption.

After a short break and without further delay, it was time for the ever popular fund-raising raffle, which was conducted by **David Beamer**. In addition to the usual donations of husbandry equipment, posters and T-shirts, this extravagant raffle offered a "rainmaking system" that retailed for \$290.

Arriving just in time, ushered in by **Ron Humbert**, was

our guest speaker, **Dr. Steven Garber**, who is a biologist working for the New York and New Jersey Port Authority at JFK International Airport. His presentation was entitled, "Plight of the North American Wood Turtle." Dr. Garber began his presentation by thanking **Chris Lechowicz** for contacting him to speak before the CHS: "I'm not worthy, I'm not worthy," he joked. He also thanked **Mike Dloogatch**, whom he had met at an SSAR meeting 19 years ago, for referring him to the CHS. In addition, he thanked Ron Humbert (whom he had gotten to know quite well on the way from the airport) for picking him up and whisking him to the meeting.

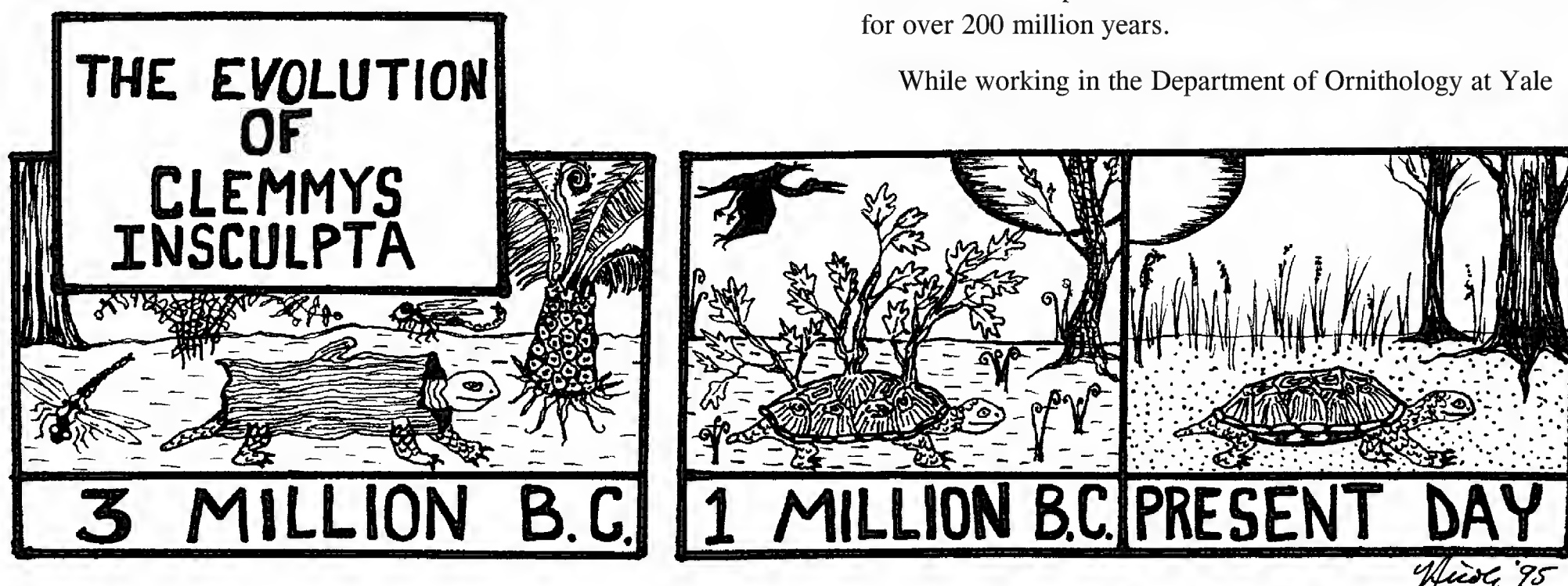
As a young adult in Connecticut, Dr. Garber was always fascinated by wood turtles and took every opportunity to escape to his secret place to watch his special friends. Over the years, he got to know them all including their movement patterns, their markings and even their personalities. He kept thorough notes and wrote down every piece of information regarding the turtles, although, back then, he was unsure exactly what he was going to do with all these notes. Little did he know that this information would prove invaluable in his research project which spanned nearly 20 years.

Dr. Garber began his slide presentation by showing us photos of wood turtles camouflaged under leaves and in the beds of streams. Acknowledging that his photos were unclear and looked like an edition of "Where's Waldo?" he admitted that, while he kept meticulous notes, he hardly ever took photos of the turtles.

The vast range of the wood turtle reaches as far north as Nova Scotia, down to Virginia, and over to Michigan and Wisconsin. It was surprising to learn that in his Connecticut study area Dr. Garber was generally able to find active wood turtles in all 12 months of the year.

Dr. Garber explained that wood turtles are generalists and need a little of everything (i.e., deciduous forest, streams and rivers, and fields) to survive. Dr. Garber believed that this complex mix of habitat could help explain the findings in an often-cited experiment conducted by Tinklepaugh in 1932, in which wood turtles traveled through a maze with as much finesse and intelligence as rats. He added that turtles in general have a built-in plan for survival and have remained on earth for over 200 million years.

While working in the Department of Ornithology at Yale



Mike '95



University's Peabody Museum, Dr. Garber decided to write his thesis on the wood turtle. He chose wood turtles because he liked them, not because they would bring him money or fame, and because he had saved all those scraps of paper over the years. Finally, the day came to compile all these notes into a computer database. He remarked that a good statistician tries to find out what the reality is, "Data talks. . . . It tells you things." It took him six months to enter everything and import it into a spreadsheet. Back then, it took a computer eight hours to analyze a given dataset. He would push the button before going to bed and upon awakening, it would be complete.

His study was conducted in a restricted and undeveloped area owned by a power company. His computer analyses showed that his marked populations were declining. The statistics revealed ten years of steady population size followed by declines every year over a ten-year period. He was shocked. At first, he blamed himself. He thought that he might have been unintentionally killing his subjects. He acknowledged that in the course of study, the stress of handling the turtles or the process of collection could have resulted in mistakes or casualties. Then he began to question his wisdom in giving a presentation on the wood turtle at the International Herpetological Symposium, where he had boasted about knowing "all the best spots" to find wood turtles. He thought that by identifying the study site, he might have led collectors into the area. He was relieved when he reexamined his data and notes from several years back to find that the decline had begun much earlier. He showed us a series of graphs that confirmed the decline in juvenile populations. He developed several hypotheses to explain the drastic decline, but was able to reject them all one way or another. For example, he could rule out habitat destruction, since the site was in a protected reservoir and no new roads were built during the study. An interesting sidelight was Dr. Garber's as yet unpublished "sexy grandmother hypothesis," in which young male wood turtles were found to be mating with older female wood turtles.

Dr. Garber obtained data on the increase over the years in human populations in the area surrounding his study site. While this increase took place, the power company changed the way it managed the property. Over the first ten years of his study, Dr. Garber had been the only nonemployee of the power company with permission to enter the site. In an effort to increase community services, the company issued permits to 17 towns near the site allowing hiking, picnicking, jogging and baby strollers. Dr. Garber suggested that such visitors might have caused the decline. A certain number are going to spot a turtle, pick it up and bring it home thinking, "What is one little turtle going to hurt?" He further feared, "Just like pretty flowers . . . not everyone picks a flower, but some do. People who like nature the most, want to take it home with them." The hard to resist, adorable baby turtles are especially coveted. Dr. Garber is concerned that if these conditions are allowed to continue, breeding colonies of wood turtles will be abolished. He is worried that taxpayers are under the opinion that their tax dollars contribute to the creation of national and state parks and that they somehow feel entitled to the natural resources they provide. This hypothesis was difficult for him

to prove directly. He was unable to get the names and addresses of each individual in the surrounding town who might have frequented the area and surmised that they probably would not admit to taking a turtle anyway. He accepts the fact that prevention of this kind of thing would be difficult and feels that education of young people is the only answer. He stated that, "We are part of the problem. Herpetology is growing in popularity. There are more herps in captivity now than ever before and almost everyone is a 'breeder'."

He truly believes that 50 years from now, if numbers continue to decline, there will be absolutely no more wood turtles. He suggested that we must initiate research and preventative methods now, not after the situation has become a crisis and is too late. He also admonished the states for creating an imbalance by overfunding recreational fish and game departments. In an effort to help the situation, he has formed an ad hoc coalition with some friends, which has petitioned the U.S. Fish and Wildlife Service to list the wood turtle as a threatened species. The organization has so far been stymied by much red tape, but has not given up. Dr. Garber noted that it easy to determine that the wood turtle occurs in a specific location, but much harder to prove that it doesn't. Dr. Garber asked for our help. He asked that anyone with any knowledge or significant data about a decline in wood turtle populations, anywhere within its range, please contact him. He was also interested in obtaining any photographs of different varieties or color phases to help with the sought-after legislation.

For more information on wood turtles, Dr. Garber recommended Archie Carr's, *Handbook of Turtles*. He concluded a lengthy question and answer session when he exclaimed, "I think I'm ready to go out for pizza!"

We stay in touch, so you stay in touch.

NEWT



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## The Tympanum

### In Jamestown: From Roger, to Roger

Jamestown, New York, is a town of 35,000 nestled within the second most productive grape growing county in the United States. Located near scenic Lake Chautauqua in the western edge of the state, Jamestown is also the birthplace of at least three well-known icons of popular American culture: the crescent wrench, Lucille Ball and Roger Tory Peterson. I don't know how the town has honored the indispensable tool or the late comedian, but eleven years ago the Roger Tory Peterson Institute of Natural History was founded to commemorate the work of its native son, famed for the field guide series that bears his name.

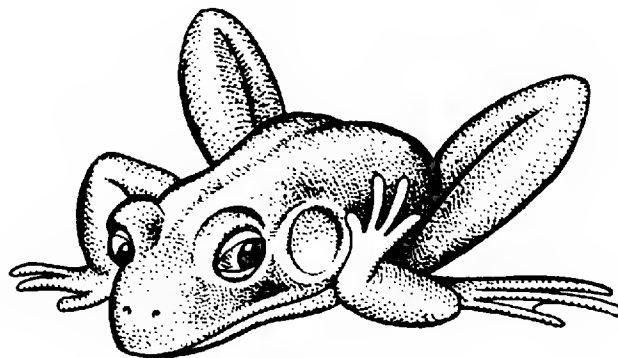
According to Dr. William L. Sharp, Director of Education Programs, the Institute's mission is to inform society about the natural world through the study and teaching of natural history. Its goal is to create passion for and knowledge about nature in the hearts and minds of children by offering teacher training workshops, national forums, and publications.

Since 1991, the Institute has presented Nature Educator of the Year Awards to people whose works have exemplified the mission of the Institute. One award is presented each year to a classroom teacher, another to an individual who works with children directly in a community-based setting such as a park or nature center, and yet another to a person of national importance who may not work directly with children but whose work has influenced young people in a manner consistent with the mission of the Institute. Each award comes with a \$1000 stipend and an all-expense paid trip to the award ceremony in Jamestown.

This year is unique, in that two individuals were selected for the Nature Educator of the Year Award in the category of national importance. One of them is herpetologist Roger Conant, who began his career at the Toledo Zoo, was longtime curator and director of the Philadelphia Zoo, and since his retirement in 1973 has served as adjunct professor at the University of New Mexico in Albuquerque. The other is John Ripley Forbes, founder and president emeritus of the Natural Science for Youth Foundation. Mr. Forbes aided the development of more than 200 children's museums and nature centers across the United States.

Dr. Conant is probably best known to fellow CHS members on the basis of his *Field Guide to Reptiles and Amphibians* in the Peterson Series. Now in its third edition, it has sold more than 500,000 copies, and is the most widely used book in herpetology.

I nominated Dr. Conant for this award primarily because of that field guide. I felt that he had a similar impact on the study of amphibians and reptiles to that which Roger Tory Peterson had on birding. Conant's book has helped to educate thousands of young people about the natural history and captive husbandry of amphibians and reptiles. Many professional herpetologists credit that book as their original inspiration. In addition, his *Reptile Study* merit badge booklet for the Boy



Scouts of America led to 200,000 scouts earning that particular merit badge. Thousands more impressionable youngsters were influenced by visiting the Reptile Houses designed and curated by Conant in the Toledo and Philadelphia Zoos.

On a more personal level, Conant's encouragement of young people through correspondence is legendary. He has answered more than 15,000 letters in his career, many of them from budding naturalists in their adolescence, as I was when I began writing to him in 1969.

It was truly my privilege to attend the award luncheon on Saturday, July 15 in Jamestown to witness the presentation of this prestigious award from the most influential artist/ornithologist of the 20th century, soon-to-be 87-year-old Roger Tory Peterson, to perhaps the most important herpetologist of the 20th century, 86-year-old Roger Conant. This experience will remain a cherished memory for me for as long as I live into the upcoming century.

Congratulations to Roger Conant, "Nature Educator of the Year" for 1995!

Members of the Roger Tory Peterson Institute of Natural History receive a free book of their choice from Peterson Field Guide Series. For more information about the Institute, its programs, and awards contact: Roger Tory Peterson Institute of Natural History, 311 Curtis Street, Jamestown NY 14701-9620, (716) 665-2473. **Raymond Novotny, Mill Creek Metropolitan Park District, 816 Glenwood Avenue, Youngstown, OH 44502.**

### CHS Adoption Service

The CHS adoption service has an abundance of herps that need new homes. Common animals found on the service are green iguanas, caimans, red ears and box turtles, and common species of pythons and boas. Less common animals are placed on the service from time to time. Frequently the service receives calls from distressed owners or "finders" of animals that cannot care for the animals correctly. If you're interested in adopting one of these animals as a pet, and can care for it properly, please contact Char Haguewood at 708/209-1426, weekdays 7-9pm CST.



## Herpetology 1995

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editors assume full responsibility for any errors or misleading statements. JCM

### ORGANOCHLORIDES IN SEA TURTLES

M. J. Rybitski et al. [1995, Copeia (2):379-390] examined tissues from juvenile loggerhead sea turtles, *Caretta caretta*, and Kemp's ridley sea turtles, *Lepidochelys kempi*, stranded in Virginia and North Carolina, using capillary gas chromatography to determine concentrations of organochlorine pollutants. The predominant organochlorides were PCBs, DDT and its breakdown products, DDE and DDD. Concentrations of the pollutants were related to tissue type and relative lipid content. Subcutaneous fat had the highest lipid content, followed by liver, kidney and pectoral muscle. Concentrations ranged from 55.4–1730 µg/kg for loggerheads to 7.46–607 µg/kg for Kemp's ridleys. Other studies have linked low- to mid-range organochloride contamination with hormone dysfunction and immunosuppression in turtles, while high levels have resulted in poor egg production in other turtle species.

### MULTIPLE PATERNITY IN THE ADDER

M. Höggren and H. Tegelström [1995, Copeia (2):271-277] note that female adders, *Vipera berus*, have been reported to copulate several times per season with different males. Observations of matings may not truly reflect paternity because prolonged contractions of the female uterus may function as a "copulatory plug." The authors performed breeding experiments with adders and used DNA fingerprinting to determine paternity and possible between-season sperm storage. Multiple paternity was detected in all broods investigated, and associated males were the genetic fathers in all cases but one. The authors conclude that although there may be a copulatory plug, it does not prevent multiple paternity following multiple matings within a short period of time.

### GOPHER TORTOISE DENSITIES

D. R. Breining et al. [1994, J. Herpetology 28(1):60-65] compare gopher tortoise, *Gopherus polyphemus*, densities with habitat characteristics in scrub and flatwood habitats on the Kennedy Space Center, Florida. Tortoises were distributed widely among habitat types and did not have higher densities in well-drained (oak–palmetto) than in poorly-drained (saw palmetto) habitats. In the fall, mean densities of tortoises ranged from 2.7 individuals/ha in disturbed habitat to 0.0 individuals/ha in saw palmetto habitat. Springtime mean densities of tortoises ranged from 2.5 individuals/ha in saw palmetto habitat to 0.7 individuals/ha in oak–palmetto habitat. Densities of tortoises are correlated positively with the percent of herbaceous cover, an indicator of food resources. Plots were divided into three burn classes: areas that had been burned within three years of the study, those burned four to seven years prior, and those unburned for more than seven years prior to the study. Relationships between densities of tortoises and time-since-fire classes are inconsistent.

### FOUR NEW SPECIES OF WOLF SNAKES FROM THE NORTHERN PHILIPPINES

H. Ota and C. A. Ross [1994, Copeia (1):159-174] describe four new species of the genus *Lycodon*. *Lycodon alcalai*, *L. bibonius*, *L. chrysoprateros* and *L. solivagus* are described from Bataan, Camiguin, Dalupiri and Luzon islands. These species are similar to *L. dumerili* and *L. muelleri* but distinct from other Philippine congeners by having a slightly arched maxilla, medially divided nasal, and an entire anal shield. Individuals of *L. bibonius* were found in leaf axils of palm trees and in decomposing vegetation during the day, and on palm trunks at night. One contained a half-digested skink. The *Lycodon chrysoprateros* were found along a forest trail. And *L. solivagus* was found in a shrub, 2 m above the ground.

### A NEW DAY GECKO FROM MADAGASCAR

C. J. Raxworthy and R. A. Nussbaum [1993, Herpetologica 49(3):342-349] surveyed the Tôlaïaro region in southeast Madagascar and found a new species of day gecko, *Phelsuma antanosy*, a species known only from three littoral forests and associated with two species of plants. The species has a variable nostril position and it may be more closely related to species from the Mascarene Islands than to other Madagascan species. The authors also examined the holotype of *Phelsuma trilineata* and concluded that it is a junior synonym of *P. cepediana*. A new specimen of *P. cepediana* collected in northwest Madagascar suggests that it may have been introduced to Madagascar from Réunion or Mauritius.

### NEW GUINEA LEATHERBACKS

H. Hirth et al. [1993, Biological Conservation 65:77-82] studied nesting female leatherback turtles, *Dermochelys coriacea*, on an important nesting beach near Piguwa, Papua New Guinea. Leatherbacks had an average overcurvature standard carapace length of 11.35 cm, and laid a mean of 88.2 eggs. The eggs had mean diameters and weights of 52.2 mm and 81.5 g, respectively. Statistically significant positive relationships were found between carapace lengths of nesting turtles and the sizes and weights of their clutches. Nesters spent an average of 74 minutes at the nest site. The nests were about equally distributed on the front and rear halves of the beach and only a few nests were constructed below the beach scarp. Leatherback eggs, an important source of protein and currency for local inhabitants, are heavily harvested in December and January. A high density nesting section of the beach was recommended for Wildlife Management Area (WMA) status. This means that the traditional beach owners, with the support of the federal government, would regulate the sustainable harvesting of leatherback eggs on the WMA. Ecotourism, centered on the nesting leatherbacks, is a distinct possibility.



## A NEW LOOK AT OLD BONES

J. Fischman [1993, *Science* 262:845-846] comments on the Society of Vertebrate Paleontology meeting held 13–16 October in Albuquerque, New Mexico. His first report covers the continuing controversy surrounding the turtle ancestor. Paleontologists agree that the turtle ancestor is within the obscure group of reptiles called parareptiles. But was the ancestor a pareiasaur or a procolophonid? Robert Reisz and Michel Laurin of the University of Toronto argue for a procolophonid in a 1991 *Nature* article and built a stronger case at the Albuquerque meeting. They listed a suite of features linking turtles and procolophonids, including elements of the shoulder and upper limb bones, the shape of the stapes (a middle ear bone) and the shape of the lower jaw and its attachment to the skull.

Antarctica appears potentially rich in dinosaur remains. W. Hammer and W. Hickerson, of Augustana College, report remains of several small scavenging dinosaurs, the remains of a pterosaur, and a 60 cm skull of an allosaurus-like dinosaur with a forward-facing crest atop the skull.

P. Larson, of the Institute of Geological Research, reports that determining the sex of *Tyrannosaurus rex* and other dinosaurs is possible. Larson studied crocodilian skeletons, finding that males have the two proximal vertebral chevrons about equal in size and closer to the base of the tail than females. Presumably this arrangement is for the attachment of muscles that extend and retract the penis. Larson examined 14 *T. rex* skeletons and several troodontid skeletons and found a similar pattern, suggesting that *T. rex* can now be sexed.

## ACID BOGS AND AMPHIBIAN REPRODUCTION

D. R. Karns [1992, *J. Herpetology* 26(45):401-412] reports that breeding amphibians in the boreal peatlands of northern Minnesota encounter a mosaic of water quality: acid bog sites (pH < 4.5), fen sites (pH > 5.0), and marginal fen sites (pH 4.5–5.0). Laboratory and field work demonstrate that peatland amphibians (*Rana sylvatica*, *R. pipiens*, *Pseudacris triseriata*, *P. crucifer*, *Hyla versicolor*, *Bufo americanus*, *Ambystoma laterale*) are differentially tolerant of bog water. Embryonic development is arrested or hatching is inhibited in bog water, and larval growth and survival are negatively affected. *Rana sylvatica*, the most tolerant species tested, successfully hatched in bog water at large oviposition sites (> 65 egg masses) when water temperatures were relatively warm. *R. sylvatica* was the only peatland species to develop successfully at marginal fen sites. Amphibian survival through metamorphosis was not observed at bog sites. All species successfully reproduced at fen sites. Embryos and larvae of *R. sylvatica* from a northern Minnesota peatland were more tolerant of bog water than *R. sylvatica* from a circumneutral southern Minnesota peatland marsh. Breeding peatland amphibians used fen sites to a greater extent than toxic bog sites, although fen was less common (70% bog : 30% fen). Evidence suggests that fidelity to natal fen sites rather than individual avoidance of bog water is the primary mechanism of habitat selection. The toxicity, distribution and age (3000 years old) of bog habitats in the Minnesota peatlands make bog water an important influence on the distribution and abundance of resident amphibians.

## FEMALE CARPENTER FROG CALLS

M. F. Given [1993, *Animal Behavior* 46:1139-1149] describes female carpenter frogs, *Rana virgatipes*, giving a low-intensity, high-frequency, single-note call during courtship. The female call is distinct from the similar-sounding male single-note aggressive call in having higher dominant and secondary dominant frequencies, and less pronounced harmonics. Playback experiments were conducted, in which synthetic variants of the female call were played to territorial males. Males' responses were similar to their responses to male vocalizations: they switched from advertisement calls to a high rate of single-note aggressive calls. Males did not discriminate between the natural female call and a synthetic call of lower dominant frequency, or between two series of four natural female calls with different internote duration. Finally, the rate of multinote aggressive calls (encounter calls) is greater when the natural female call is accompanied by the movement of a life-sized rubber model of a frog placed within 20 cm of the male. Therefore, territorial males obtain information both from the sound and from the mechanical disturbance of the water.

## GARTER SNAKE MOVEMENTS STUDIED

B. M. Graves et al. [1993, *Animal Behavior* 45:307-311] monitored the movements of 20 free-ranging garter snakes, *Thamnophis sirtalis*, using radiotelemetry. The vomeronasal nerves were severed in nine of these, thereby preventing chemoreception via the vomeronasal system. The remaining 11 snakes received a sham procedure. Sham and avomic snakes moved with equivalent frequency. Furthermore, the proportion of movements that returned individuals to previously used sites were equal for snakes in the two conditions. In contrast, movements of avomic snakes were not as lengthy as those of snakes with functional vomeronasal systems. These data indicate that vomeronasal system chemoreception is not required for movement and orientation by garter snakes in their home ranges. While other sensory systems may compensate to a large extent for this loss of information, reduced movement distances indicate that such compensation is not complete.

## NEW CRETACEOUS AMPHIBIAN

G. McGowan and S. E. Evans [1995, *Nature* 373:143-145] report on albanerpetonids, enigmatic salamander-like amphibians known from the middle Jurassic to Miocene ages of North America, Europe and Central Asia. The conservative group is readily recognized by its unusual peg-and-socket joint between the mandibles, non-pedicellate tricuspid teeth, a polygonal sculptured pattern on its skin, and a two-part craniovertebral joint analogous to that of amniotes. Previous researchers have placed these amphibians with the salamanders, or as a separate group, but they resemble salamanders only in their unspecialized, tailed body form. New material from Spain's early Cretaceous includes complete skeletons, traces of skin, and possibly male courtship glands. The new material suggests they were terrestrial, and represent a distinct lineage of Liss-amphibia. The authors describe the new material as the new genus and species, *Celtdens ibericus* in the family Albanerpetontidae, from Las Hoyas, Spain.



## SAGEBRUSH LIZARD DEMOGRAPHY

D. W. Tinkle et al. [1993, Ecology 74(8):2413-2429] report an eleven-year study of life history and demographic variation in the sagebrush lizard, *Sceloporus graciosus*, carried out on two study areas (Rattlesnake Ridge and Ponderosa Flat) in the Kolob Mesa Section of Zion National Park, Utah. The two primary objectives of the mark-recapture study were to: (1) quantify variation in age structure, age and size at maturity, age-specific survivorship and fecundity, and individual growth rates, and (2) conduct a series of density reduction experiments designed to elucidate the effects of density on growth rates and survival of posthatchling lizards. In addition, the authors examined the relationships of variation in population density and deviation from long-term average precipitation and temperature to variation in individual growth, reproduction, and demography.

At both sites the activity season was about 160 days, extending from April to mid-September. Reproduction occurred during a 50-day period between mid-May and early July. Mean clutch size was 3.7 eggs and most females produced their first clutch in the second year of life (their third active season) at an age of about 22–24 months and a minimum snout-vent length of about 50 mm. Most mature females produced two clutches of eggs per year, and there was no statistically significant variation in either mean clutch size or body-size-adjusted clutch size among the 11 years of study. Clutch size was significantly correlated with body size. Relative clutch mass averaged 0.247 and was not significantly correlated with body size. Since hatchlings first appear in early to mid-August, their first growing season is about two months long. There was no significant sexual dimorphism in growth rate or body size in either population.

There is great variation in estimates of egg-yearling survival among years. Egg-yearling survival probability varied from 0.12 to 0.59 with a mean of 0.28. At Ponderosa Flat, the survival of yearling males (0.38) was significantly lower than that of yearling females (0.47). Survival of yearling males (0.45) and females (0.43) at Rattlesnake Ridge was not significantly different. There were no other significant differences in the survival of males and females ( $\bar{x} = 0.56$  for both sexes) within any ages class in any year of the study. However, the survival of yearlings was significantly lower than that of older lizards in both populations. Mean posthatchling survival over all years was 0.45, and there was significant heterogeneity in posthatchling survival among years. Average annual survival of immigrants (0.32) was significantly lower than of residents (0.44).

There is a significant negative linear relationship between yearling body size in late June and total density of posthatchling lizards. A stepwise linear regression model reveals significant effects of both rainfall (and presumably resource availability) and population density on the growth of yearlings. The model explains 78% of the annual variation in yearling growth. Rank correlation analysis reveals survivorship of hatchlings is negatively correlated with density of conspecifics. The negative correlation implies direct density dependence of hatchling mortality rates and is a potentially important mecha-

nism of population regulation. Removals of almost all yearling and older age lizards from the study sites resulted in significant increases in growth rates of hatchlings in the year of the removal and yearlings during the following year.

Four results combine to suggest substantial resource limitations of *S. graciosus* on the Kolob Mesa: (1) Snout-vent lengths attained by yearling lizards are positively correlated with deviations from long-term mean rainfall values. (2) Body size attained by yearlings are greatest in the years following density reductions. (3) Body size attained by yearlings is negatively correlated with density of conspecifics. And (4), in a year in which a density reduction follows a warm, wet spring, more yearling females reach maturity than in all other years of the study combined.

## FROGS WITH FANGS

S. B. Emerson [1995, American Naturalist 143:848-869] finds that some Southeast Asian ranid frogs possess an unusual suite of secondary sexual characteristics, fangs, hypertrophied jaw muscles, enlarged heads, and larger male body size. Phylogenetic analysis suggests these frogs form a monophyletic group, and historical transformation analysis and comparative performance tests suggest the complex of characters evolved as the result of sexual selection. Patterns of dimorphism within the group were used to test a series of predictions from the sexual selection literature. As predicted, closely related species differed most in their secondary sexual characteristics and sexual selection is likely to produce novelties. Contrary to predictions, more derived taxa did not show a greater degree of sexual dimorphism, sexual dimorphism did not increase with body size, and the evolution of new secondary sexual characteristics did not precede and therefore contribute to the loss of old characteristics.

## SALAMANDER SURVIVAL AND pH LEVELS

S. A. Wissinger and H. H. Whiteman [1992, J. Herpetology 26(4):377-391] monitor the demographics of the tiger salamander, *Ambystoma tigrinum nebulosus*, in Central Colorado subalpine ponds (3600 m elevation). Larval recruitment fluctuated dramatically from year to year, but they found no evidence that survival of either embryos or larvae was affected by pH. In each year, the pulse of snowmelt acidification was either benign, or occurred earlier than egg deposition. During 1990 and 1991 individual egg masses were followed and it was determined that embryonic survival was high in all ponds and did not differ between ponds with high and low acid-neutralizing capacities. In permanent ponds, survival of first year larvae was high and independent of pH. Within cohorts, second-year larvae were actually larger in ponds with low acid-neutralizing capacity than in ponds with high acid-neutralizing capacity. The largest source of mortality in the population between 1988 and 1991 was related to pond drying; about half of all hatchlings that survived to July perished in autumn, when many of the ponds dried. The results suggest that fluctuations in hydroperiod is as viable a working hypothesis as snowmelt acidification for the recent decline in this population.



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For sale: c.b. three-toed box turtles, \$10 each; 10' Papuan olive python, tame, good feeder, \$200; c.b. hatchling striped albino California kingsnakes, \$40 each. Tom, (602) 967-6265.

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For sale: Chicago area pickup only. C.b. '93 anerythristic (no red) corn snakes (both light and dark phases), feeding well on thawed adult mice, \$30 each; one c.b. '93 black and yellow banded (hetero for albino) California kingsnake, feeding on thawed adult mice, \$40; two c.b. '93 Kenyan sand boas, feeding on dead fuzzy mice, \$70 each; two c.b. '93 Kenyan sand boas, feeding on live fuzzy mice, \$50 each; 24" friendly savannah monitor, feeding well on dead rodents and beef heart, \$50. Janice, (708) 484-7307, 10 A.M. – 10 P.M., leave a message if I can't pick up.

For sale: c.b. hatchling snakes. Honduran milk, \$90; Leonis king (*thayeri*), \$125; speckled king, \$15. Also LTC female northern cat-eyed snake (or will buy male), \$50; male Russian rat, \$125. Henry Cohen, 24 St. Johns Place, Buffalo NY 14201, (716) 881-6724.

For sale: one male and one female Children's pythons, c.b. '90, breeders, \$700/pair; one male and one female Kenyan sand boas, male is albino, c.b. '94, female is hetero (albino), c.b. '93, both Mark Bell stock, \$2250/pair; three male and three female San Luis Potosí kings, c.b. 8/95, lots of red, light gray, very nice, \$65–85 each; one male and one female mid-Baja rosy boas (San Felipe), c.b. '90, produced four babies in '94, seven in '95, \$400/pair; one male and one female blue-tongue skinks (*Tiliqua s. scincoides*), c.b. '95, \$275/pair; two male and two female Nuevo Leon kings (*thayeri*), c.b. 7/95, Leonis phase, "alterna" patterns, nice colors, \$100–150 each; two male and one female Tarahumara kings (*knoblochi*), Osborne bloodline, c.b. 6/95, very pretty, \$375 each. (619) 265-7557. [San Diego]

For sale: juvenile ('95) rough-scaled sand boas, *Eryx conicus*, \$75; juvenile ('95) and one male and one female adult desert sand boas, *E. miliaris*, \$125; one male and two female adult Tatar sand boas, *E. tataricus vittatus* (male has old spinal injury), \$135; juvenile ('95) and yearling ('94) olive pythons, *Morelia o. olivaceus*, \$800–1000; one 10' adult male olive python, \$1100; two male and two female Moluccan amethystine pythons, 8–12', \$600–1000/pair or offer. All adult snakes are long-term captives. Still expecting in '95: *E. j. jaculus*, *E. tataricus*, Dumeril's boas, rosy boas (*saslowi*). David Sorensen, 4100 N. 78th Street, Milwaukee WI 53222, (414) 463-6164.

For sale: captive-bred snakes. Blood pythons, Burmese pythons, Kenyan sand boas, black rat snakes, bull snakes. Will deliver in Chicago metro area or ship from O'Hare Airport. Joan Moore, (312) 528-4631.

For sale: one male and one female emerald tree boas, c.b. young adults, \$900/pair; two male and one female Dumeril's boas, c.b. adults, \$1000/trio; Brazilian rainbow boas, \$215 each; black&white banded California kingsnakes, c.h. 7/95, \$40 each; Sinaloan milksnakes, due 9/95, \$50 each. Dan Malone, 15085 180th Avenue, Big Rapids MI 49307, (616) 796-9299.

For sale: yearling male **Brazilian rainbow boa** (*Epicrates c. cenchria*), brown phase, in excellent health, tame and taking adult mice, \$275. Will not ship, serious calls only. Robert Sacha, (708) 636-6148.

For sale: six c.b. '95 Mexican rosy boas (*Lichanura t. trivirgata*) , \$80 each. No shipping, sorry. Mark Witwer, (610) 873-0823. [Westchester PA]

For sale: captive bred and born. Argentine boas, \$250; Hog Island boas, \$400; Colombian boas, \$100; Brazilian rainbow boas, \$250; jungle carpet pythons, \$400; spotted pythons, \$125; Borneo short-tail pythons, \$125; two male white-lip pythons, \$125 each; two male Veracruz milksnakes (*Lampropeltis triangulum polyzona*), \$175 each; Louisiana pine snakes, \$300; Everglades rat snakes (Marcia Lincoln "super glades"), \$35; corn snakes — Okeetee, amelanistic and snow, \$35, ghost corns, \$50. Terry L. Vandeventer, Arco Iris Herpetoculture, (601) 924-1409 phone or (601) 924-9766 fax. [MS]

For sale: expected '95—deposits accepted. Pythons—blackheads, womas, green trees, diamonds, jungle carpets, rings, bloods (red and black) and Children's. Boas—emeralds, Hog Islands, Madagascan tree (*Sanzinia*), Bolivian redtails, Argentines, Brazilian rainbows, Dumeril's and sand boas. Tortoises—Aldabras (3"–24"), Hermann's, marginateds, redfoots, leopards and others. For price list send a one-time fee of \$3, which includes a '95 list (and *all* future lists) and color photos. Dick Goergen, P.O. Box 225, Alden NY 14001, (716) 681-4518.

For sale: Australian olive pythons; Irian Jaya carpet pythons; San Felipe rosy boas; Borneo blood pythons; leucistic Texas rat snakes; blond trans-Pecos rat snakes; Taiwan beauties; 80% yellow banana kings; black-tailed cribo; Baird's rat snakes; yellow rat snakes. (ALL c.b. except carpets, which have been deparasitized and power-fed since they were imported five months ago.) Please call any time (6 A.M. – midnight, 7 days a week), (415) 864-3122 phone or (415) 864-1423 fax.

For sale: 6½' female boa constrictor, proven breeder, \$200; c.b. '92 male Arizona mountain kingsnake, \$125. Jack Phillips, (708) 724-4552.



## Advertisements (cont'd)

Offer: An expense-paid sabbatical with reptiles, in Washington, D.C. For three months, summer 1996, live in a home in an upscale suburb and care for a pancake tortoise and two reticulated pythons. Call Kathy, (202) 857-3265, to apply.

Pet-sitting service: Complete in-home pet and plant care, specializing in reptiles and other unique pets. Dogs and cats welcome with open arms, midday dog walking. Experienced and dependable service by devoted animal lovers, serving Chicago and suburbs, reasonable prices, fully insured and bonded. Ask about our habitat consultation and custom-made cages. Exotics & More, (312) 728-5457 or page us at (708) 750-3688.

Repto-rama: Fun and educational herp shows for children's birthday parties, classrooms, nature centers etc. Dave Golde, (708) 679-1530.

Software: **TRACS™**—Total Reptile and Amphibian Control System. The most complete database and reporting solution for automating your breeding records. Perfect for hobbyists, commercial breeders and institutions. Only \$129 plus \$5 shipping & handling (\$10 outside U.S). Demo disks available for \$10 (cost may be applied toward purchase price). IBM PCs and compatibles. For more information or ordering contact Marcia Rybak at Leapin' Lizards, 736 N. Western Avenue, #315, Lake Forest IL 60045, (708) 735-8205 phone or (708) 735-8206 fax.

Tours: Five-day South Carolina herp and fossil tours, April–November 1995. Mini expeditions in search of 30-million-year-old turtles and crocodilians; living reptile hunts (vipers, king and rat snakes, turtles, anoles, broadhead and five-lined skinks, treefrogs and other amphibians), exotic reptile shopping and camping in a black water swamp forest. Finest Charleston hotels beginning and end of each tour. Twelve people per tour. Family plans available. \$489. For reservations call Steve Faust, (800) 894-TOUR.

Tours: Custom-designed tours to Costa Rica, Panama, Belize and Guatemala. Expeditions to fit the specialized needs of herpers, photographers, educators, writers, professionals in search of data, and travelers just interested in visiting these countries (with or without their families). From \$649. Steve Faust, (800) 894-TOUR.

Tours: **Road-riding in Costa Rica!** Treat yourself to the trip of a lifetime! Learn about tropical herps, find them, photograph them, see where they live. **Greentracks, Inc.**, offers the best herpetological tours led by internationally acclaimed herpetologists and herpetoculturists. See the Amazon, visit cloud forests, experience the world's greatest rainforest, super sunsets and good company. Call (800) 9-MONKEY.

Tours: Limited bookings available for guided tours of herpetological collection sites in Nevada. Call or fax (702) 471-0240 for reservations. For a brochure send SASE to: CRC, P.O. Box 0731, Las Vegas NV 89125-0731.

Wanted: to adopt out 12' female reticulated python — have had for 12 years. Leave message, (815) 728-0697. [Wonder Lake]

Wanted: albino common musk turtle (*Sternotherus odoratus*), also called stinkpot, stinking Jim or skillpot, see Pritchard, pp. 560-561. R. J. Brown, 4934 Bayway Drive, Tampa FL 33629, (813) 286-0643.

Wanted: adult male Egyptian tortoises, *Testudo kleinmanni*. Colin, (312) 784-2061.

Wanted: female *Varanus timorensis*; female *Varanus beccarii*; *Shinisaurus*. Mike, (770) 987-3933. [GA]

Wanted: sand boas (*Eryx elegans*, *E. jayakari*, banded *E. johnei*, *E. muelleri* and *E. somalicus*). David Sorensen, 4100 N. 78th Street, Milwaukee WI 53222, (414) 463-6164.

Wanted: *Uromastix acanthinurus*. (817) 613-1242 (6 – 9 P.M. Central Time). [TX]

Wanted: styrofoam boxes, any size or shape so long as they're not flimsy, preferably with cardboard liners, willing to pay from \$2 to \$5. Bring to CHS meetings. Scott J. Michaels, D.V.M., Serpent City, (815) 363-0290.

Line ads in this publication are run free for CHS members — \$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (312) 588-0728 evening telephone or (312) 782-2868 fax.

# Captive Bred Herp Sale

Friday, October 20, 1995 6-10 p.m.

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October 20-22, 1995

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Hosted by the Chicago Herpetological Society



## Unofficial Minutes of the CHS Board Meeting, August 25, 1995

The meeting was called to order at 8:35 P.M. Board members Art Nohlberg and Steve Vick were absent.

### Officers' Reports:

The Minutes of the June board meeting were read and approved. The Treasurer's Report was read and accepted. Membership is now 1737.

### Committee Reports:

**Legislative:** The January 1996 meeting will feature speakers from the Illinois Department of Conservation and U.S. Fish & Wildlife.

**Workshops:** Dates to be announced.

**Shows:** Ron and Dottie Humbert, Claus Sutor and Jenny Vollman will participate in the Springbrook Nature Center Show in Itasca on August 27. The 13th annual HerPETological Weekend put on by the CHS for the Chicago Academy of Sciences will be at North Pier on September 23-24.

**Midwest Symposium:** The October 6 committee meeting will be held at the Clarion O'Hare.

**Nominating Committee:** The Nominating Committee for the 1996 Board has been appointed. Its members are: Chris Lechowicz, Tony Rattin, Gary Fogel, Audrey Vanderlinden, and Karen Gielski.

### Old Business:

**SSAR Conference:** The CHS sent Jack Schoenfelder to this summer's SSAR Conference to give his presentation on Marketing Herpetology. Mike Ross moved and Jill Horwich seconded that the CHS reimburse Jack Schoenfelder for the expenses he incurred while attending the conference. After some discussion, Jill Horwich amended the motion and Nicole Marrello seconded that the CHS reimburse Jack Schoenfelder for his airfare to and from the Conference. The amended motion passed unopposed, with Jack Schoenfelder abstaining.

**Answering Machine:** The CHS answering machine is no longer reliable. Brian Jones will purchase a new machine, using the \$150 previously allocated for this purpose by the Board.

**Bulletin Board:** Anyone knowing the location of the CHS bulletin board, please contact Gary Fogel.

**Display cages:** The sign that fits on top of the modular CHS display cages has been found.

### New Business:

**CAS Show:** HerPETological Weekend will take place September 23-24 at North Pier. Space is at a premium this year, so all CHS members who plan to participate are asked to register in advance. The Academy is providing some reduced-rate passes for parking. However, these will not cover everyone. Mike Ross moved and Brian Jones seconded that the CHS reimburse all participants who register in advance for the CAS show for their parking expenses, if they park in the designated parking facility, and show their parking receipts. The motion passed unanimously.

**IRS:** Jack Schoenfelder reported that the CHS received an inquiry from the IRS because of a minor reporting error. The inquiry has been satisfied and the CHS remains in good standing.

**Exchange:** Mike Dloogatch moved and Mike Ross seconded that the CHS exchange memberships with the Utah Association of Herpetologists (U.T.A.H.). The motion passed unanimously.

Mike Dloogatch moved and Gary Fogel seconded that the CHS exchange memberships with the Chameleon Information Network. The motion passed unanimously.

Brian Jones will contact the International Iguana Society regarding exchanging memberships.

### Round Table:

John Driscoll pointed out that the CAS office building parking situation is intimidating to suburban-dwelling Board members. The September 15 Board Meeting will therefore be held at Mike Dloogatch's office at 11 South LaSalle, Suite 2703.

Jack Schoenfelder reported that at the recent SSAR Conference of Regional Herpetological Societies, the CHS was mentioned favorably by ten of the 12 speakers. We are still held in high regard in the herpetological community.

The meeting adjourned at 9:40 P.M.

*Respectfully submitted by the Recording Secretary, Jill Horwich*

## 11th Annual Midwest Herpetological Symposium October 20-22, 1995



### Speakers Include:

**Walter Auffenberg, Ph.D.**  
*Micro Geography of the Saw-scaled  
Vipers of Pakistan and Egypt*

**Sandra Barnett**  
*Husbandry and Breeding of Poison  
Dart Frogs at the National Aquarium*

**Stephen Barten, DVM**  
*Physical Examination of Reptiles*

**Winston Card**  
*Overview of Research in the  
Dallas Zoo Reptile Department*

**Michael Corn, Ph.D.**  
*Herps of Costa Rica*

**Carl H. Ernst, Ph.D.**  
*Overview of Freshwater and Terrestrial  
Turtles of the United States*

**Gary Fogel**  
*Keeping and Breeding  
Cordylid Lizards in Captivity*

**Neil Ford, Ph.D.**  
*Natural History of Garter Snakes  
of North America*

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## News and Announcements

### 1995 CHS GRANT RECIPIENTS

The CHS Grants Committee is proud to announce the 1995 grant recipients. The committee, comprised of Anthony Rattin (Committee Chair), Thomas Anton, Byron DeLaVarre, and Michael Miller, report that this year's applications were extremely competitive, and that their final decision was a difficult one. Four grants were awarded this year. A grant in the amount of \$440 was given to Jeff Ettling, Curator of Herpetology at the Sedgwick County Zoo (Wichita, KS). Sedgwick County and Fort Worth [TX] zoos are currently working with the Hope Zoo in Kingston, Jamaica, to develop a conservation program for the endangered Jamaican boa, *Epicrates subflavus*. The CHS grant will assist these institutions with their difficult task. Colorado State University Ph.D. candidate Robert Espinoza was awarded a \$500 grant. Espinoza will use the grant money to investigate the evolutionary and ecological correlates of viviparity in the lizard genus *Liolaemus*. Terry Graham, a Worcester State College (Worcester, MA) biology professor, received a \$450 CHS grant. Dr. Graham has spent a decade studying the winter activity of freshwater turtles, and will use the grant money to study the wintering ecology of the spiny softshell turtle, *Apalone spinifera*. The final grant recipient is Michael Keck. A Ph.D. candidate at the University of Texas at Arlington, Keck was awarded a \$500 grant. Keck is studying the thermal ecology and population dynamics of semi-aquatic snakes in a thermally-polluted reservoir. The grant will aid Keck in his study.

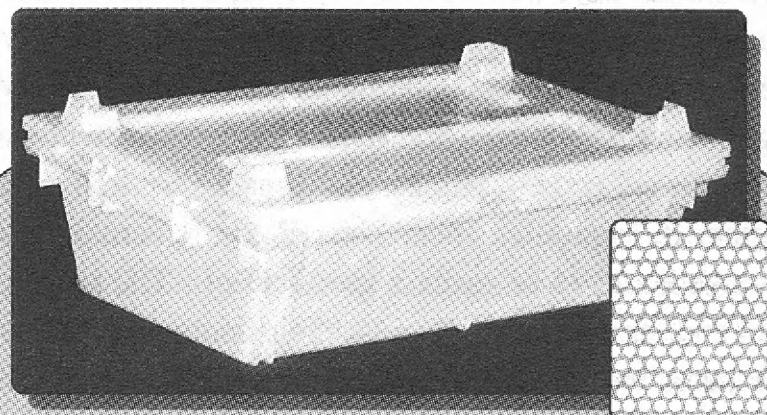
### NEBRASKA HERPETOLOGICAL SOCIETY SWAP MEET

The Nebraska Herpetological Society is holding a swap meet for captive bred animals only at the New Tower Inn, 78th and Dodge, Omaha, Nebraska, on Sunday, October 15, 10:00 A.M. – 6:00 P.M. Admission is \$2; a six-foot table costs \$20. For information call (712) 323-8566.

## Health Food for your herps!



Highest quality rodents are available in all sizes from pink mice to jumbo rats. Fresh frozen crawler mice are only 17¢ each in lots of 2,000. All frozen animals are shipped in insulated boxes.



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## UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, September 27, at the Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, in Chicago. Featured speaker Douglas Mader, D.V.M., of the Long Beach Animal Hospital in California, will talk on "Advances in Herpetological Medicine." Dr. Mader will discuss new and exciting breakthroughs in the medical care of reptiles and amphibians in captivity. He will use actual cases to illustrate just how far herpetological medicine has advanced in recent years.

The speaker at the October 25 meeting will be Gerry Salmon of Rhinebeck, New York. Gerry will present a slide program on gray-banded kingsnakes. Not only will he show us just about every color phase and subspecies known, he will describe in detail where these animals come from, and when, how and by whom they were discovered.

We are required to use the entrance on the west side of the museum. We have permission to use the staff parking lot to the west of the museum. Entrance to this lot is from McFetridge Drive, the wide street just to the south, between the museum and Soldier Field. There is also free parking available in the lot to the north of the museum. The #146 CTA bus goes directly to the museum. Unfortunately, it does not operate after 9:00 P.M. However, after the program anyone needing a ride to a CTA stop will have no trouble finding one—just ask any board member.

## Turtle Club

The Chicago Turtle Club will meet Sunday, September 17, 1:00–3:30 P.M., at their new venue, the North Park Village Nature Center, 5801 N. Pulaski, in Chicago.

## SEPTEMBER 23–24 HERPETOLOGICAL WEEKEND

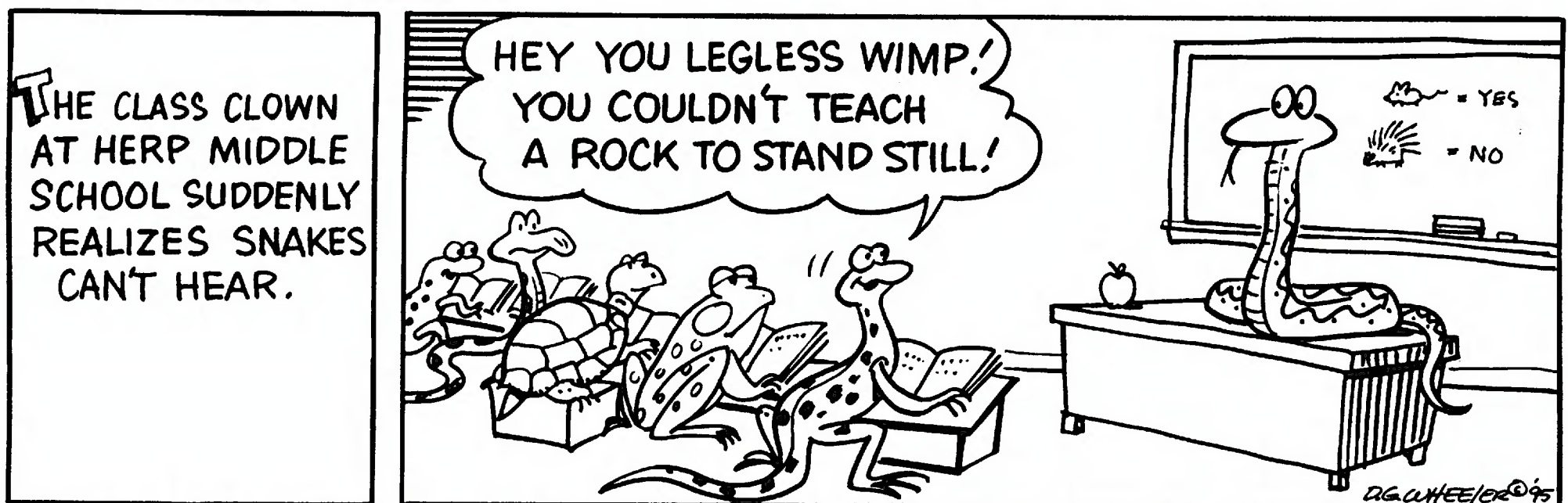
As many of you are no doubt aware, the Chicago Academy of Sciences currently occupies temporary quarters at North Pier, 465 E. Illinois Street (just across Lake Shore Drive from Navy Pier). This will be the site for the 13th annual HerPETological Weekend put on by the CHS under the auspices of the Academy. The show will take place over the weekend of September 23–24, from 10 A.M. to 4:30 P.M. on Saturday and from Noon to 4:30 P.M. on Sunday. We urge all CHS members to bring some of their favorite animals and suitable containers in which to display them. We plan to reimburse exhibitors for parking fees. For more details attend the August 30 CHS meeting or phone Ron Humbert at (708) 620-7377.

## DONATIONS TO THE AUGUST 30 RAFFLE

The following is a listing of those individuals and businesses who generously donated items for our monthly raffle at the August 30 meeting.

Ghann's Cricket Farm; Terrarium Art; Aquascape; Valentine Supply; TFH Publications; California Zoological Supply; Nekton, USA; Bush Herpetological Supply; Mark Papiernik.

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